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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,294	07/25/2005	Yasuhiko Nishi	U 015541-5	9137

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EXAMINER	
SANTIAGO, MARICELI	
ART UNIT	PAPER NUMBER
2879	
MAIL DATE	DELIVERY MODE
04/28/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,294	NISHI ET AL.	
	Examiner	Art Unit	
	Mariceli Santiago	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,7-19 and 25-51* is/are pending in the application.

4a) Of the above claim(s) *46-51* is/are withdrawn from consideration.

5)☒ Claim(s) *29-42* is/are allowed.

6)☒ Claim(s) *2,7-19 and 43-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Receipt of the Amendment, filed on February 17, 2009, is acknowledged.

Cancellation of claims 1, 3-6 and 20-24 has been entered.

Claims 2, 7-19 and 25-51 are pending in the instant application.

Election/Restrictions

Newly submitted claims 46-51 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 46-51[1], drawn to a process for producing a tape-like material.

Group II, claim(s) 29-42, drawn to process for producing a tape-like material.

The inventions listed as Groups I an II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical feature of Group I pertains to simultaneously moving the anode and the cathode relative to each other as to move a cathode spot of an arc on the cathode.

The special technical feature of Group II pertains to jetting, from an inside of a hollow anode to the cathode, an inert gas having an ionization efficiency higher than the ionization efficiency of an atmospheric gas or a mixed gas containing the inert gas.

[1] Claims 25, and 26-28 now depending from new claims 46 and 47 are hereby incorporated within the restricted claims.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 43-45 and 7-19 rejected under 35 U.S.C. 102(b) as being anticipated by Tsuboi (JP 2001-035362).

Regarding claims 43-45 and 7-13, Tsuboi discloses a tape-like material (301) containing unrefined carbon nanotubes formed of carbon fibers entangled with each other into a tape-like shape.

It is noticed that claims 43-45 and 7-13 incorporate limitation as to the method of making the carbon nanotubes, consequently, claims 43-45 and 3-13 are considered "product-by-process" claims. In spite of the fact that a product-by-process claim may recite only process limitations, it is the product and not the recited process that is covered by the claim. Further, patentability of a claim to a product does not rest merely on the difference in the method by which the product is made. Rather, is the product itself which must be new and not obvious. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Accordingly,

the structure implied by the process steps would be considered for assessing the patentability of product-by-process claims over the prior art (see MPEP 2113).

Regarding claim 14, Tsuboi discloses a field emission electrode including the tape-like material (301) containing carbon nanotubes wherein the tape-like material is bonded to a substrate (101).

Regarding claims 15-16, Tsuboi discloses a field emission electrode having a torn tape-like material (301) adhering to the substrate (101). It is noticed that limitations with respect to the method of manufacturing are not germane to the issue of patentability of the claimed device.

Regarding claim 17, Tsuboi discloses a process for producing a field emission electrode comprising the step of bonding the tape-like material to a substrate (101) with a conductive adhesive.

Regarding claims 18-19, Tsuboi discloses a process for producing a field emission electrode, the process comprising the step of pinching the tape-like material between a substrate and a material more deformable than the substrate to apply a pressure, and then separating the substrate and the deformable material (i.e., peeling), whereby the field emission electrode has a torn tape-like material adhering to the substrate (cause by the peeling step).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboi (JP 2001-035362).

Regarding claims 1, 3-13, Tsuboi discloses a tape-like material (301) containing flocculated carbon nanotubes. Tsuboi fails to exemplify the limitation having a thickness in the range of 10-50 μm and a width in the range of 1-10 nm. However, it has been held that a change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). It would have been obvious to one having ordinary skill in the art to provide a thickness in the range of 10-50 μm and a width in the range of 1-10 nm, since such a modification would have involve a mere change in the size of a component.

Allowable Subject Matter

Claims 29-42 are allowed overt he prior art of record.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 29-42, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 29-42, and specifically comprising the limitation of the anode and the cathode are relatively moved so as to move a cathode spot of an arc on the cathode.

Response to Arguments

Applicant's arguments filed February 17, 2009 have been fully considered but they are not persuasive.

Applicant contents that the structure implied by the claims process is distinctive over the structure disclosed by prior art reference to Tsuboi (JP 2001-035362). The arguments are not persuasive, applicant is relying on the comparison between the scanning electron micrograph shown in Fig. 12 and Fig. 20 of the instant application, however the comparison is not considered to show the difference between the product of the prior art and that of the instant

application. Moreover, applicant contends that the prior art of record fails to teach material having entangled carbon nanotubes, however, it is a known fact that carbon nanotubes will grow in an entangled state unless an alignment technique is performed during a manufacture/growth process, furthermore, Tsuboi teaches the random growth of unrefined rough nanotubes.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (571) 272-2464. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Mariceli Santiago/
Primary Examiner, Art Unit 2879